

## **REMARKS**

Applicants submit that, in view of the discussion below, none of the claims now pending in the application is obvious under the provisions of 35 U.S.C. §103. Thus, the Applicants believe that all of these claims are now in allowable form.

### **I. CLAIM AMENDMENTS**

Applicants have canceled Claim 4 without prejudice. Applicants have amended claim 1 to clarify the recitation of polynomials, addressing the objection of the Examiner as to informality. Applicants have also amended claims 1 and 5 to more clearly recite aspects of Applicants' invention. Applicants submit that no new matter has been added by these amendments, which are supported by at least paragraphs [107] through [115] of Applicants' specification. (Paragraph numbers correspond to those in the published version of Applicants' specification. See US 2004/0220786 A1.)

### **II. REJECTION OF CLAIMS 1-7 UNDER 35 U.S.C. § 103**

Claims 1-7 stand rejected as being made obvious by the Bultan et al. article ("*Model-checking of Concurrent Systems with Unbounded Integer Variable: Symbolic Representations, Approximation, and Experimental Results*," hereinafter "Bultan") in view of the Vangheluwe thesis ("*Multi-formalism Modeling and Simulation*," hereinafter "Vangheluwe"). Without conceding the propriety of the combination, the rejection is respectfully traversed as the references fail to teach all of the features recited in Applicants' amended claims.

The Applicants submit that neither Bultan nor Vangheluwe teaches, shows, or suggests the step of saturating a selected set of polynomials, as claimed in the Applicants' amended independent claims 1 and 5. The Office Action concedes that Bultan does not expressly teach the saturating step (Page 4). The Office Action contends, however, that Vangheluwe (at pages 101-05 and 190) bridges this gap in the teachings of Bultan. The Applicants respectfully disagree. Vangheluwe does not teach "saturation" as the word is being used by Applicants, and described in Applicant's amended claims.

At pages 101-05 and 190, Vangheluwe describes a problem in graph theory involving directed graphs with flow annotations, where a 'flow' represents the concept of a capacity of each link in the directed graph. Vangheluwe uses the term 'saturate' in the

context of this problem as the state of the graph when a link has reached its capacity constraint. However, Applicants' claims describe saturating a set of polynomials, wherein saturating comprises repeatedly choosing a polynomial from the selected set of polynomials and adding a time derivative of the chosen polynomial to the set unless the time derivative is a constant or a constant multiple of a polynomial already in the set, as described in Applicants' specification at paragraphs [107] through [115]. As the capacity of a link on a directed graph with flow annotations is very different from the claimed step of adding polynomials to a set, Vangheluwe does not describe Applicants' saturating step.

As neither Bultan nor Vangheluwe teaches or suggests the saturating step of independent claims 1 and 5, the Applicants submit that claims 1-7 are not made obvious by the teachings of Bultan in view of Vangheluwe. Therefore, the Applicants submit that for at least the reasons set forth above, claims 1-7 fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

### **III. REJECTION OF CLAIMS 1-7 UNDER 35 U.S.C. § 103**

Claims 1-7 are further rejected as being made obvious by the Hsieh et al. article ("*Model Abstraction for Formal Verification*," hereinafter "Hsieh") in view of Vangheluwe. Without conceding the propriety of the combination, the rejection is respectfully traversed as the references fail to teach all of the features recited in Applicants' amended claims.

The Applicants submit that neither Hsieh nor Vangheluwe teaches, shows, or suggests the step of saturating a selected set of polynomials, as claimed in the Applicants' independent claims 1 and 5. The Office Action concedes that Hsieh does not expressly teach the saturating step (Page 5). The Office Action contends, however, that Vangheluwe bridges this gap in the teachings of Hsieh. The Applicants respectfully disagree, as described earlier herein.

As neither Hsieh nor Vangheluwe teaches or suggests the constructing and saturating steps of independent claims 1 and 5, the Applicants submit that claims 1-7 are not made obvious by the teachings of Hsieh in view of Vangheluwe. Therefore, the Applicants submit that for at least the reasons set forth above, claims 1-7 fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

**IV. REJECTION OF CLAIMS 8-9 UNDER 35 U.S.C. § 103**

Claims 8-9 stand rejected as being made obvious by Bultan in view of Vangheluwe (as applied to claims 1-7 above), and further in view of the Lincoln et al patent application (US Publication 2003/0033126, hereinafter "Lincoln"). Without conceding the propriety of the combination, the rejection is respectfully traversed as the references fail to teach all of the features recited in Applicants' claims.

The Bultan and Vangheluwe references have been discussed above. Neither reference teaches all the limitations of independent claim 5, from which claims 8-9 depend. Lincoln does not bridge this gap, and as such the asserted combination cannot render claims 8-9 obvious. Therefore, the Applicants submit that for at least the reasons set forth above, claims 8-9 fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

**IV. CONCLUSION**

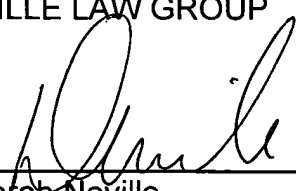
Thus, the Applicants submit that all of the presented claims fully satisfy the requirements of 35 U.S.C. §103. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Deborah Neville at (650) 283-0848 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

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Date

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Respectfully submitted,  
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